

CONSTRUCTION PERMITS AND FLOW OF PROJECTS WITHIN THE SUNYANI MUNICIPALITY, GHANA

E. Zoya Kpamma¹ and Theophilus Adjei-Kumi²

ABSTRACT

One of the quality control measures in the construction industry in Ghana is the statutory requirement for the acquisition of permits before the commencement of construction work. The acquisition of these permits, among others, ensures quality of building construction products and less impact on the environment. The process of obtaining these permits has however been observed to be associated with steps that affect the flow of pre-construction activities leading to delays, and possibly cost overruns and decreased value of building construction products.

The paper examines the processes involved in obtaining building construction permits and how that impacts flow of activities at the pre-construction stage. The study focused on the Sunyani Municipality, an emerging urban area in Ghana. Permit issuing authorities like the Municipal Assembly, the Environmental Protection Agency and the National Fire Service were contacted for data on permit acquisition processes and requirements. Developers and consultants who have been involved in obtaining permits from these authorities were also interviewed.

The study points to the acquisition of permits as one of the obstacles in ensuring continuous workflow in the building construction project delivery process, mainly due to lack of integration of process steps as well as delays in processing and issuing the permits.

KEYWORDS

Construction permit, flow, lean construction, value, integration, waste, Ghana

INTRODUCTION

One of the quality control measures in the construction industry is the enforcement of regulations requiring the acquisition of permits before construction commences. Regulations, standards and codes are an essential framework for ensuring a quality structure (Emmitt, 2002). The issue of the permits is based on compliance of designs with standards and specifications. The processes associated with obtaining permits however interrupt the flow of pre-construction activities leading to delays, and possibly cost overruns as well as decreased in value. High cost and time overruns are seen to be associated with construction product delivery process in Ghana (World Bank 1996, 2003 and Westring 1997). These time and cost overruns can partly be attributed to activities at the design and documentation stage, of which permit

¹ Lecturer, Building Technology Department, Sunyani Polytechnic, P.O. Box 206, Sunyani, Ghana, Phone + (233) 244787599, evanskpamma@yahoo.co.uk

² Lecturer, Building Technology Department, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, Phone + (233) 244536995, tadjekumi@yahoo.com

acquisition is key. In relation to construction cost overruns, design-related causes constitute the major category (Josephson and Hammarlund, 1996).

The design solution and many work phases in a construction project delivery process are subject to checking and approval by regulatory authorities. These interventions by the authorities cause uncertainty and constraints to the process (Koskela, 1992). Getting approval for a design solution is unpredictable and also causes delays. Construction projects can be formulated as a series of work processes linked to each other in a dependent network, with some processes running serially and some running concurrently (Palaniappan et al., 2007). Work in construction projects therefore typically flows from one process as a completed step to the next step to augment the process. Ballard and Howell (1994), Howell et al. (1993), Tommelein et al. (1999), Walsh et al. (2007), and Sawhney et al. (2007) have all, in previous studies, indicated the potential damaging nature of inter-linkages between processes.

FLOW IN CONSTRUCTION

Flow in production, proposed by the Gilbreth and Gilbreth (1922), has in scientific terms, provided the basis for Just in Time (JIT) and lean production. In the concept of flow, production is viewed as a flow whereby in addition to transformation activities, there are non transformation activities like waiting, inspection and movement (Gilbreth and Gilbreth, 1922). The concept of flow is one of the core elements of lean thinking towards achieving a complete removal of waste (Picchi and Granja, 2004). It describes an ideal situation of a flowing value devoid of interruptions thus leading to waste elimination and ensuring a reduction in the lead time of production (Womack and Jones, 1996). Ensuring flow requires production cells involving models like one piece flow, multi-functional operators, as well as controlled and standardised rhythm for significant productivity gains (Rother and Harris, 2002).

Lean thinking, apart from focusing on a systematic elimination of waste, also adopts the concepts of continuous flow and customer pull (Kotelnikov, 2007). Organising production as a continuous flow is one of the core concepts of lean production (Howell, 1999). Improving workflow reliability, according to Ballard (1999), is important for productivity of linked production units, and consequently for project cost and duration. Continuous workflow ensures steady production rates that eliminate the chaos of fragmented stop-and-go production processes (Caldeira, 1999).

THE LEAN PROJECT DELIVERY SYSTEM™ (LPDS)

The [Lean Project Delivery System](#) (LPDS) was developed by the Lean Construction Institute (LCI) to apply principles pioneered in manufacturing to construction. LPDS tools facilitate planning and control while maximizing value and minimizing waste throughout the construction process. Ballard (2000b) describes LPDS as a production management-based approach to designing and building capital facilities in which “the project is structured and managed as a value generating process”.

The lean project delivery process builds cooperation in the context of a single integrated team involving the client, architect, contractor and other critical players, like regulators, as equals in the pursuit of a shared goal (Mossman et al., 2010). LPDS is an integrated design and project delivery process which seeks to promote a smooth flow among the various activities like designing and permitting, as well as among

major players in the construction project delivery process like clients, designers and regulators.

REGULATORY FRAMEWORK

Regulation of construction is critical to protect the public, but it needs to be efficient to avoid excessive constraints on a sector that plays an important role in every economy (World Bank and IFC, 2012). Design and production phases in the Ghanaian construction industry are subject to monitoring, checking and approval by regulatory authorities. The intervention by regulatory authorities is a constraint to continuous flow because the need for approval and permits in the design and construction processes can cause delays and uncertainties.

The construction industry is one of the most highly regulated industries with developers finding themselves interfacing with national, regional and district bureaucracies at all levels of a project to obtain building permits (Eyiah, 2004). Globally Ghana is ranked 156 in the ranking of 183 economies on the ease of processing construction permits (World Bank and IFC, 2012).

Some of the applicable regulations in the design and construction processes in Ghana include the National Building Regulations, the Environmental Assessment Regulations and the Fire Precautions (premises) Regulations. Though these regulations are to ensure quality of construction products and safety to the environment, their enforcement involves a lot of bureaucratic and non-value adding steps that compromise the principles of continuous flow. Most delays in establishing business in developing countries like Ghana occurred not only in securing land, but also in obtaining building permits (Mensah et al., 2003).

The National Building Regulations of 1996 (L.I. 1630), are required to be applied to the erection, alteration or extension of a building. Application for a permit is required to be made, under these regulations, to the District Planning Authority when one intends to erect any building, or make any structural alteration to any building, or execute any works or install any fittings in connection with a building.

The Environmental Assessment Regulations of 1999, (L.I. 1652) provides for an integrated approach to environmental assessment. The process of registration and obtaining an environmental permit under these regulations depends on the nature and scope of the construction process.

The Fire Precautions (Premises) Regulations 2003 L.I. 1724, was passed to give backing to the Ghana National Fire Service (GNFS) to insist on or evaluate Fire Safety Precautionary measures in premises, to occupants or any person staying in that premises by ensuring that they can escape from fire safely and quickly. This has led to the need for the acquisition of a fire certificate certifying the adequacy of precautionary measures in a particular premise.

METHODOLOGY

The focus of the study was to conduct a comprehensive evaluation of development approvals and construction permit processes, mainly involving building permits, environmental permits and fire permits in order to establish how the processes affect workflow in the construction project delivery process. The study area was the Sunyani municipality in Ghana. The Sunyani municipality is not just a transit town for travellers between northern and southern Ghana, but is also a place of increased

economic activity mainly resulting from the operations of a multinational mining company close to the town, and the presence of two universities and a polytechnic.

The methodology was formulated on the basis of the model of Zucker et al. (2008) as shown in Figure 1 below. This is a model that was employed by Zucker systems to conduct a comprehensive evaluation of the development approval and permit processes in the City of Troy in Michigan State.

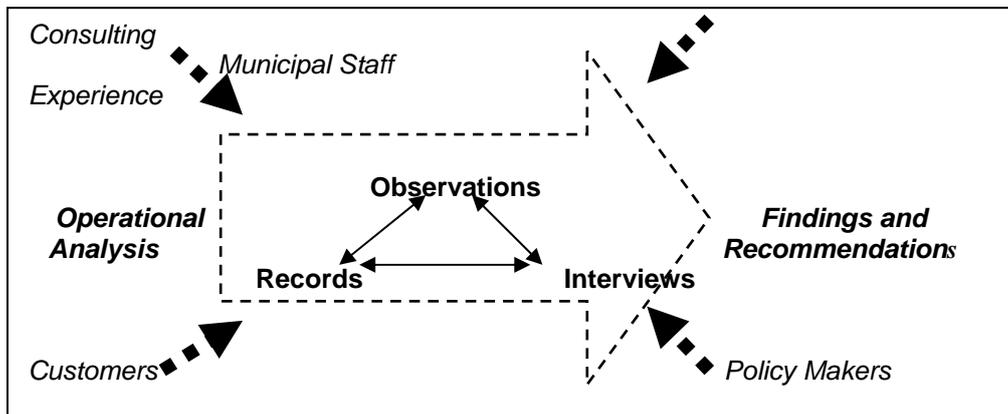


Figure 1: Methodology Overview (Zucker et al., 2008)

Apart from bringing our experience as consultants in the construction industry to the study, we also chose to work closely with the municipal staff and went further to solicit inputs and observations from developers/clients as well as policy makers like assemblymen. The instruments were mainly built around interrelating records, observations and interviews. In order to ensure the credibility of findings, observations and interviews were used to verify records, records and interviews were used to verify observations while records and observations were used to verify interviews.

Data collection on the building permit acquisition process started with interviews with the Municipal Town and Country Planning Officer, as well as the Municipal Engineer for a detailed insight into the steps involved in the building permit acquisition process. A Technical Officer and the Regional Director of the Environmental Protection Agency (EPA) were also interviewed to obtain data on the steps involved in the environmental permit acquisition process. On the steps involved in the fire permit acquisition process, the Municipal Fire Officer and one of the Technical Officers of the GNFS were interviewed.

Further interviews were conducted with clients and consultants/contactors who have been involved in the process of acquiring the various permits, to verify the information on the permit acquisition steps obtained previously from the staff of the Municipal Planning Authority, EPA and GNFS. This basically involved a telephone and face-to-face interview with twenty former applicants for construction permits such as building permits, environmental permits and fire permits. The questions in these interviews were mainly centred on what steps clients/consultants go through in obtaining permits and the time lapses involved.

Records, in the form of handouts, forms, policies, files and regulations, were reviewed for further information on the permit acquisition steps and the associated

time lapses. The authors also relied on their involvement, as consultants, in the acquisition of the various permits to closely observe the permit acquisition processes for verification and confirmation of data obtained from the interviews and records.

FINDINGS

BUILDING PERMIT ACQUISITION

It is required under the National Building Regulations of 1996 (L.I. 1630) that in the erection, alteration or extension of a building, an application be made to the District / Municipal Planning Authority for a building permit. Applying and acquiring a building permit in the Sunyani municipality involve a number of steps which are basically similar to other municipalities or districts in Ghana.

It was revealed from the interviews that the acquisition of a building permit starts with the purchase, completion and submission of a building permit application form with a set of production drawings and the requisite permit application fee. The Town and Country Planning Department (TCPD) upon receipt of the permit application documents commences the processing of the application by writing to the Lands Commission to confirm the title of the land. The land title confirmation is followed by inspection of the site by a technical officer of the TCPD as in Figure 2 below.

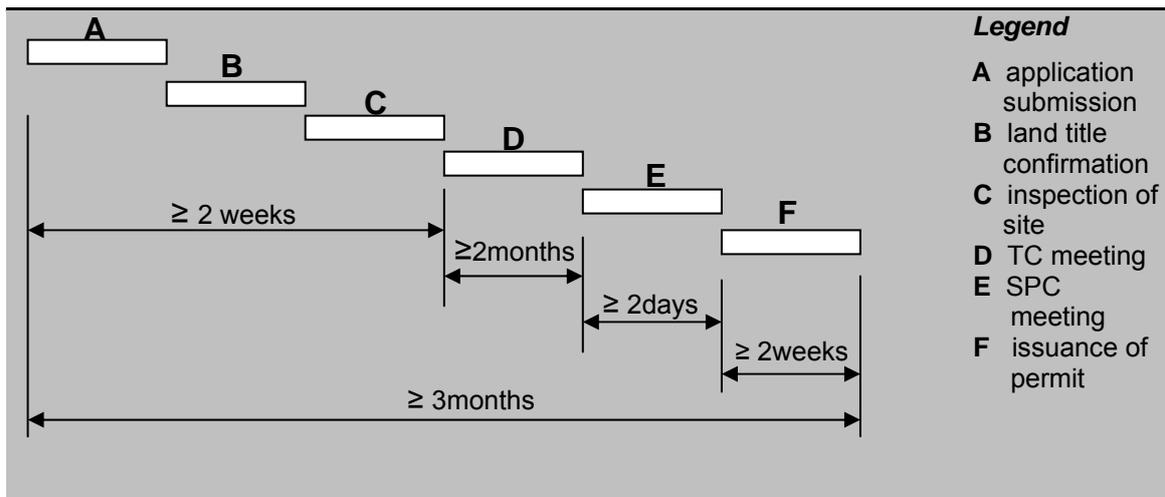


Figure 2: Steps in Building Permit Acquisition Process

The next activity is a meeting by the TC to consider the report on the site and to check the drawings submitted by the applicant to make sure that standard requirements are met in the building design. If the TC is satisfied with all the documents submitted in the application, it will then make a recommendation to the Statutory Planning Committee (SPC) of the Municipal Assembly for approval of the application. A Development Permit will then be issued by the TCPD and the building permit issued by the Municipal Assembly. Ideally the TC and SPC, according to the interviews and available records, are expected to meet bimonthly to consider building permit applications.

When all requirements are met, the building permit could be issued in three months after submission of the application. Ideally submission of application

documents, confirmation of land title from the Lands Commission as well as inspection of site and submission of report on site takes about two weeks. The TC meeting is held two months after site inspection, followed by a meeting of the SPC two days later for the approval or otherwise of the building permit. Issuance and collection of the permit take place two weeks after the SPC meeting (Figure 2).

Despite the possibility of a building permit being issued in three months after submission of application, the study revealed that it is common for permit processing to overrun three months into sometimes as long as over a year. This time overrun causes delay and has an adverse effect on the smooth flow of construction process. The extended duration of the permit processing, according to the interviews, could be blamed on factors such as missing application documents at the TCPD, missing land title registration documents at the Lands Commission, wrong land allocation, delayed meeting of TC and SPC as well as delay in signing documents by technical officers.

A Building Permit which is seen as a basic permit for all kinds of development has its processing and issuance linked to activities/processes undertaken by various organisations and individuals within and outside the domain of the TCPD and the Municipal Assembly. In the case of developments like filling stations, hotels and guest houses that require the acquisition of EPA and fire permits, issuance of a building permit is subject to production of these permits. Therefore the reliability of the flow in processing building permits for this category of developments, among others, also depends on the processing of the EPA and Fire Permits.

ENVIRONMENTAL PROTECTION AGENCY (EPA) PERMIT ACQUISITION

The process of obtaining a permit from the EPA, as the interviews and records indicated, starts with the registration of the proponent based on the nature of the impact of the construction activity on the environment. If for example the impact of the work is so large like mining and road construction, the agency will request for an environmental protection assessment book on all construction activities of the company. A meeting involving various stakeholders, the agency and the proponent will then be held to solicit views on the likely impact on the environment in the execution of the work and possible ways of mitigating the impact (Figure 3). Following this meeting, the proponent will be required to submit an environmental impact book on the activities to be undertaken.

If on the other hand the construction works is on a small scale, the proponent will be required to obtain an environmental assessment form from the EPA to complete and submit. The proponent in the completion of the form will indicate the nature of the work to be carried out, its impact on the environment, and measures that will be taken to mitigate the impact.

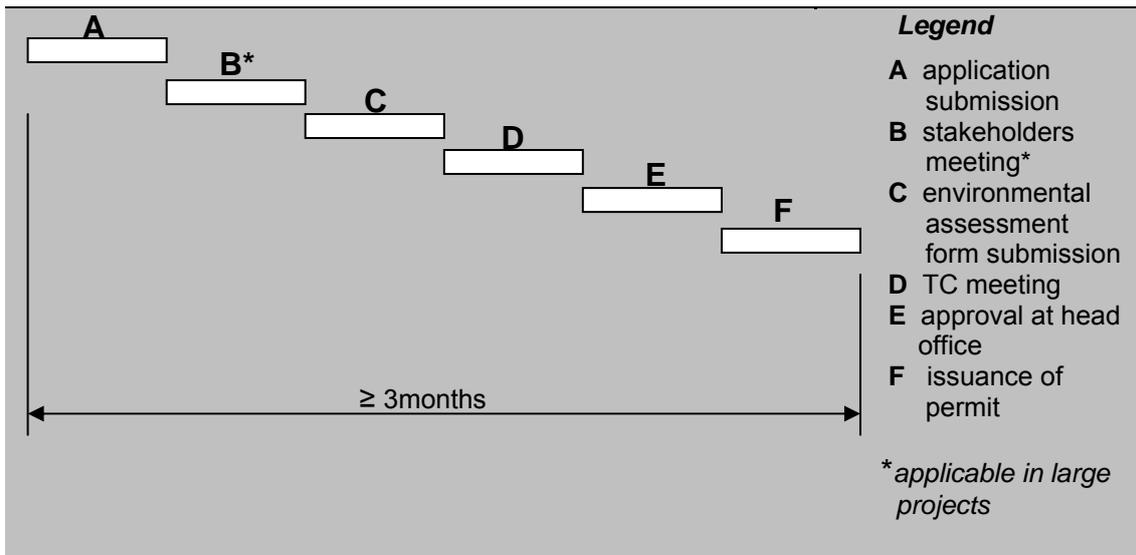


Figure 3: Steps in Environmental Permit Acquisition Process

When the environmental impact book or environmental assessment form is submitted to the EPA with the requisite processing fee, a TC meeting is convened to consider the application. If the developer's application meets all the requirements, the TC will make a recommendation and the forms sent to the EPA head office in Accra for approval. After the approval the permit will then be issued to the developer with some prescriptions to help address the impact of the activities on the environment.

ACQUISITION OF A FIRE SAFETY CERTIFICATE

The process of acquiring a fire certificate, as shown in Figure 4, starts with the submission of an application form and a letter with attachments like fire engineering drawings and fire installation protection or conceptual report on the project to the Chief Fire Officer or his representative (i.e. Regional or Municipal Fire Officer)

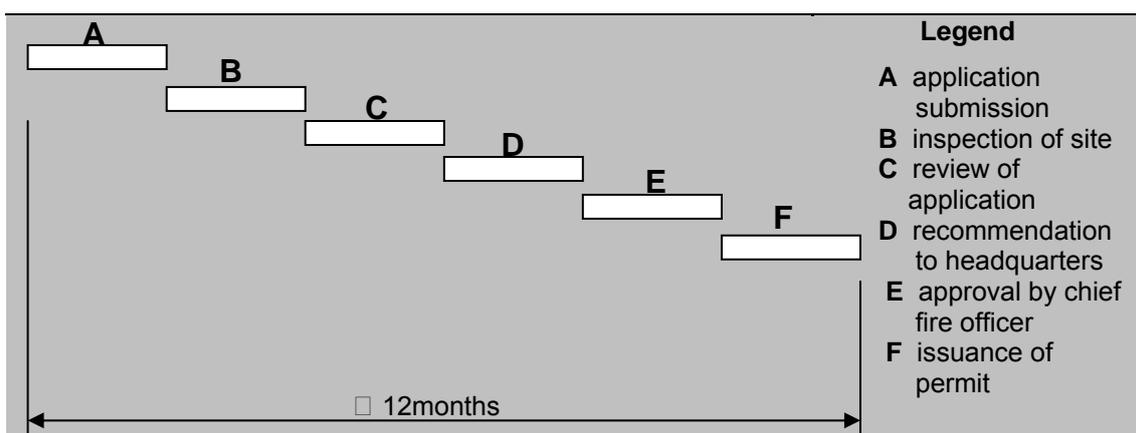


Figure 4: Steps Involved in Acquiring a Fire Safety Certificate

The GNFS after receiving an application for a fire certificate will then assign a fire inspector to inspect the site or building and submit a report. This is followed by a

review of the application and the attached documents. If the review establishes that the application and the attachments meet all the statutory requirements, the application will be forwarded to the national headquarters of the GNFS for endorsement by the Chief Fire Officer. The certificate will then be finalised and issued to the applicant. It should be noted that a fire certificate is valid for 12 months and is therefore subject to an annual renewal. Where there is a delay in obtaining a certificate from the headquarters of the GNFS, a permit may be granted for commencement of work.

It was revealed from the study that various factors contribute to possible delay in the issuance of the fire safety certificate. One factor is failure of the fire inspector to visit the site and submit his report promptly for review. This sometimes could be due to the workload on the inspector. Another cause of delay in the processing of the permit is the practice of the GNFS to hold on to pending applications until a requisite number of applications are received before they are forwarded to the headquarters in Accra for approval. Delay could also arise out of failure of the Chief Fire Officer to sign applications promptly due to the workload on him.

CONCLUSION

As a measure to ensure quality of construction products as well as safety to the environment and occupants of buildings, construction activities in the Sunyani Municipality and other parts of Ghana are controlled by three main regulations. These include National Building Regulations, the Environmental Assessment Regulations and the Fire Precautions (premises) Regulations. The enforcement of these regulations requires that various permits and certificates (including building permit, fire safety permit/certificate and environmental permit) are obtained before the commencement construction of work on site. While the building permit is a basic requirement in all construction activities, the acquisition of an environmental permit and fire safety is required in projects like hostels, hotels and filling stations where members of the public are a target for use.

The processes of obtaining these permits involve steps which interrupt the flow of construction activities leading to a slow down of the construction project delivery process. Most of the steps associated with the processing of these permits suffer delays as a result of factors like poor information flow among stakeholder organisations/individuals and inefficient permit processing systems. The processing of a Building Permit is for instance characterised by an incidence of waiting due to the fact that approval of the permit is not only subject to information on land title registration from lands commission but also availability of an EPA and fire safety permit particularly for public buildings like hostels, hotels and guest houses. The requirement for EPA and fire safety permit applications to be transported to the head offices of EPA and GNFS in Accra for final approval is one of the major contributors to delay in issuing these permits. There is therefore the need for a decentralisation of the final approval process of the EPA and Fire Safety Permits.

A more integrated approach among stakeholder organisations / individuals like the Municipal Assemblies, lands commission, EPA, GNFS as well as clients in the processes of application and approval of construction permits could reduce the incidence of waiting thereby ensuring better flow of construction work. Restructuring the internal mechanisms of the permit issuing authorities to bring about efficiency in

the processing of permits can bring about elimination in a number of non-value adding steps to speed up the process and enhance the flow of construction project delivery.

One of the effective ways of achieving an integrated approach to the processing of construction permits as well as ensuring efficiency in the internal operations of permit issuing authorities is the adoption of ICT. Electronically linking stakeholder organisations like the Municipal Assembly, Lands Commission, EPA and GNFS, as well as creating a platform for an electronic correspondence with clients/general public are effective ways of achieving the proposed integration. A transition from the manual submission of hardcopy applications and attachments to an electronic/online submission of softcopy applications and attachments could be encouraged to bring about efficiency and reliability in the operations and filing system of the permit issuing authorities.

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